
THE COUNTY MOTH RECORDING NETWORK IN THE 21st CENTURY: THE RESULTS OF THE NATIONAL MACRO-MOTH RECORDING SCHEME CONSULTATION QUESTIONNAIRE FOR COUNTY RECORDERS

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Abstract

As part of the National Macro-moth Recording Scheme planning project, a consultation questionnaire was sent to all county moth recorders in Britain during 2004. Over two-thirds of county moth recorders responded and the findings are reported here. The results provide an insight into the current status of the county moth recorder network, three decades after its inception.

Introduction

Interest in moths has grown considerably since the publication of Bernard Skinner's landmark *Colour Identification Guide to Moths of the British Isles* (Skinner, 1984). For the first time this work presented all the British macro-moths in a single volume, clearly and comprehensively illustrated with photographs. This served to make the group far more accessible to a wider range of naturalists.

The growth of interest in moths is reflected in the number of moth groups that have sprung up around the country, the variety of organised moth recording events taking place each year, increased coverage of the subject in journals, natural history magazines and websites, an ever-growing number of traders supplying moth-traps and related equipment, and the evolution of National Moth Night (Goodey, Hill and Tunmore, 1999). More significantly, the number of moth records being generated each year has also increased (Fox, Spalding, Tunmore and Parsons in press). Yet, despite the current levels of interest in macro-moths, at the present time there is no comprehensive, nationally co-ordinated recording scheme for all the macro-moths.

Up until his retirement in 1982 John Heath ran a national recording scheme for Lepidoptera at the Biological Records Centre, Monks Wood. Data from this were used as the basis of the distribution maps published in *The Moths and Butterflies of Great Britain and Ireland* (Harley Books, ongoing). The national recording scheme was also the starting point for a formal network of county moth recorders, each responsible for collating and verifying records from naturalists in their area. The network outlived the recording scheme and continues to this day. In the absence of a national recording scheme for all macro-moths, county moth recorders have focussed on local recording for county lists and atlases. Many have also contributed to the National Recording Network for the Rarer British Macro-moths, set up by Paul Waring in 1991, and now run as The National Scarce Moth Recording Scheme by Butterfly Conservation (with the support of the Joint Nature Conservation Committee).

In 2004 a twelve-month consultation and planning project for a proposed National Macro-moth Recording Scheme (NMRS) began, led by Butterfly Conservation and supported by the British Entomological and Natural History Society, English Nature, the Biological Records Centre, Joint Nature Conservation Committee, Rothamsted Research and representatives of the volunteer moth recording community. The Heritage Lottery Fund provided much of the funding for the planning project, with additional funds donated by some of the partners as well as the Biodiversity Challenge Group and the Royal Society for the Protection of Birds. Adrian Spalding and Mark Tunmore, working under the umbrella of Spalding Associates (Environmental) Ltd., were employed as the project consultants, working with Butterfly Conservation staff and under the guidance of a project steering group. Their findings are reported in detail in Spalding and Tunmore (2004).

The aim of the consultation and planning project was to engage with moth recorders, societies and moth groups, as well as nature conservation and biological recording organisations, in order to formulate opinion about what type of recording scheme was needed, how it might operate and who should run it. A broad overview of the consultation exercise and some of the key findings is given by Fox, Spalding, Tunmore and Parsons (in press), whilst the results of a questionnaire made available to moth recorders are detailed in Spalding, Tunmore, Parsons and Fox (2005). The purpose of this paper is to report on the results of a consultation questionnaire that was sent out to all county moth recorders as part of the NMRS planning project. The results provide a unique insight into the county moth recorder network, three decades after its inception.

The County Recorder Questionnaire

Whilst there is no national recording scheme, at the local level there is a high degree of organisation and expertise provided by the current network of around 60 county moth recorders, who process, verify and often publish data from their region. The role of the county moth recorders is voluntary, skilled and time-consuming, particularly in counties with many moth recorders, where the number of records submitted each year can add up to tens of thousands. In some cases the county recorder is closely associated with a county moth group, and may be assisted by other people with such roles as data processing or record verification.

With their local expertise, experience and familiarity to moth recorders in each county, county recorders must form an integral part of a national recording scheme. Therefore it was essential that opinion was sought from this key group of people as part of the NMRS consultation phase. Many county recorders attended the NMRS conferences held in England, Scotland and Wales during December 2003 and January 2004, where they were given the opportunity to comment and raise any specific concerns, both to the consultants and the wider audience. Inevitably though, time was limited at such events and not all county moth recorders were able to attend, so a detailed questionnaire was produced and circulated to all county moth recorders in March 2004, in order to more fully canvas opinion.

Completed questionnaires were received from 42 of the 61 county moth recorders, an impressive 68% response rate (see Appendix 1). Though replies were not received from Glamorgan (VC41) and Cheshire (VC58), comments were received from the Glamorgan Moth Group at the Welsh conference and from the Cheshire county macro-moth recorder in a private meeting. Both indicated broad support for the scheme. Responses were not received from a high percentage of Scottish vice-counties, but as most “county” moth recorders in Scotland are responsible for several different vice-counties, this is perhaps not as significant as it might otherwise appear.

The questions posed by the consultation questionnaire and summaries of the responses are detailed below. For the purposes of this paper, summarised information has been used, based upon the authors’ interpretation of the (often detailed) comments received and we apologise for any misrepresentation of the original views that may have occurred as a result.

Do you support the principle of a National Macro-moth Recording Scheme?

This question produced a 100% response in favour of the scheme.

Would you be willing to provide data to such a scheme?

Forty-one people answered “yes” to this question, though some with conditions. Only one person said “no”.

Conditions listed by some county recorders:

- Data should not be used as a means of raising funds for institutions/individuals.
- Scheme must not take precedence over the county recording system.
- Data must not be entered into the national scheme without prior verification by the county recorder.
- The agreement of the recorders whose data is being submitted is required.
- Subject to agreement by Local Records Centre.
- Financial assistance required.
- Subject to a clear statement on data confidentiality.
- Conditions must not be applied that are unacceptable to individual recorders.
- It must be easy and not time-consuming to submit data to the scheme.

Approximately how many recorders regularly send you records?

Table 1. Number of regular record providers by county.

Vice county	No.	Vice county	No.
South Devon & North Devon	12–20	Hertfordshire & Middlesex	100
South Somerset & North Somerset	55	Oxfordshire	20
North Wiltshire & South Wiltshire	10–15	Buckinghamshire	20
Dorset	40	East Suffolk & West Suffolk	30
South Hampshire & North Hampshire	100	Bedfordshire	20–25
West Sussex & East Sussex	15	Huntingdonshire	10
East Kent & West Kent	80–90	Northamptonshire	20–30
Surrey	10–15	East Gloucestershire &	
South Essex & North Essex	130	West Gloucestershire	18

Vice county	No.	Vice county	No.
Monmouthshire	20	South Lancashire & West Lancashire	55
Warwickshire	25	South-east Yorkshire, North-east Yorkshire,	
Staffordshire.....	15	South-west Yorkshire, Mid-west Yorkshire,	
Shropshire.....	<10	North-west Yorkshire	30-40
Breconshire	10	South Northumberland	
Carmarthenshire.....	3	& North Northumberland	12
Pembrokeshire	5	Isle of Man	12
Cardiganshire	1	Kincardineshire, South Aberdeenshire,	
Merionethshire	6	North Aberdeenshire	10
Caernarvonshire	10	Banffshire.....	2
Denbighshire.....	10	Moray, East Inverness-shire,	
Leicestershire (with Rutland)	50	West Inverness-shire	10
Nottinghamshire	56	Orkney Islands	16-20
		Shetland Islands	10

How do you store your records?

Note that because many county recorders use several different methods to store data, the percentages given add up to more than 100%.

Table 2. Percentage of county recorders using various methods of data storage, based upon combined data from respondents.

Method	Number	Percentage
Paper	16	(38%)
Card Index	9	(21%)
Computer	41	(97%)

The many different computer software packages in use are summarised in Table 3 (once again as one county recorder was using more than one package percentages will not add up to 100%):

Table 3. Percentage of county recorders using various computer packages, based upon combined data from respondents.

Software package	No.	Percentage	Software package	No.	Percentage
Access	3	7	MapMate	20	49
Clarion	1	2	Paradox	1	2
D-base	1	2	Recorder 3	4	10
Delta 5	1	2	SQL	1	2
Excel	5	12	Word	2	5
Lotus Approach	2	5			

Approximately how many records are you storing and over how many years?

The number of records stored varies from 3,000 in Moray and Caithness to 500,000 in Hampshire (Table 4). Most of the counties with low numbers of records occur in Scotland. Some county recorders have records going back over 100 years (e.g. 150

years for Somerset, 120 years for Huntingdonshire and 100 years for Merionethshire and Yorkshire).

Table 4. Stored records and recording period by county.

County	No. of moth records (macros & micros)	Period in years (where known)
Aberdeenshire	150,000	30
Breconshire	15,000	80
Buckinghamshire	250,000	40
Caithness	3,000	2
Cardiganshire	15,000	—
Carmarthenshire	52,000	30
Caernarvonshire	30,000	6
Denbighshire	7,000	30
Devon	200,000	40
Dorset	330,000	—
Essex	70,000	14
Gloucestershire	44,000	—
Hampshire	500,000	—
Hertfordshire & Middlesex	74,905	—
Huntingdonshire	110,000	120
Isle of Man	24,000	18
Kent	140,000	—
Lancashire	350,000	—
Leicestershire	125,000	30
Merionethshire	35,000	100
Monmouthshire	30,000	50
Moray	3,000	5
Northumberland	10,000	8
Orkney	9,500	10
Oxfordshire	10,000	—
Pembrokeshire	100,000	100
Shetland	10,000	—
Shropshire	6,000	1
Somerset	290,000	150
Staffordshire	40,000	100
Suffolk	180,000	100
Surrey	120,000	—

As can be seen from Figure 1, there is no strong relationship between the number of records (macros and micros) for a county and the number of years represented by the data set.

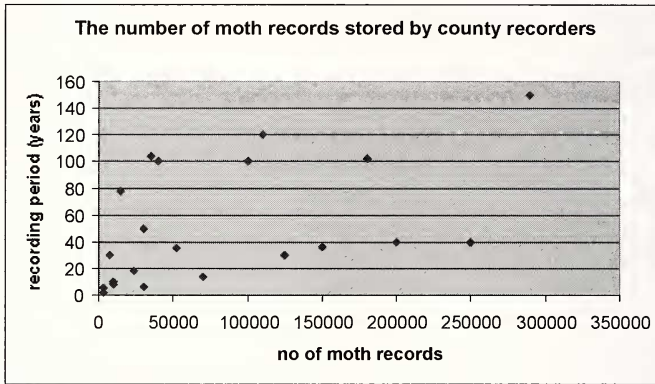


Figure 1. The number of moth records stored by county recorders related to the number of years for which records are available.

Do you have a backlog of data to process?

One person did not feel able to answer this question as he had just taken over in the role of county recorder. Out of the remaining 41 respondents, 18 (43%) stated that they did not have a backlog. Of the remaining 57% the scale of the backlog varied between six months and 15 years of more recent records. Historical data were often quoted as a source of backlog, but such data often present problems with verification where specimens are not available. Several recorders made the point that records are never completely up to date as new sources of historic data frequently occur.

In what format are records sent to you?

This question asked county recorders to provide a percentage for each form in which records are received. Unfortunately few respondents answered all parts of this question correctly, and with hindsight the question may have been worded ambiguously. Nevertheless it is interesting to note that out of 20 county recorders who submitted full answers, an average of 67% of records were received in paper format.

Do you have any assistance with data handling?

Out of the 42 respondents, 33 (79%) stated that they did not have any assistance, whilst the remaining 21% stated that they had some assistance with data inputting. Several people made the point that recorders who submit their records via the MapMate synchronization process are in effect providing assistance by reducing the amount of data inputting required by the county recorder.

Do you consider the number of records you receive each year to be increasing, decreasing or stable?

Four respondents (10%) did not feel able to answer this question, nine (21%) felt that the situation was stable, 28 (67%) felt that the number of records was increasing, whilst one county recorder (2%) felt that submitted records were decreasing in their area.

How do you verify your records?

As some county recorders used several of the following methods of verification the percentages shown in Table 5 add up to more than 100%. Four recorders did not answer this question.

Table 5. Record verification methods by percentage, based upon combined data from respondents.

Method of verification	No.	Percentage
Verification panel	7	18
Specimen and/or photo	33	87
Outside experts	1	3
Local knowledge	1	3
No validation	2	5

The level of verification reported is reassuring. Indeed many county recorders regard verification as one of their most important responsibilities. Essex, Somerset, Northamptonshire, Leicestershire & Rutland, Lancashire and Northumberland all use verification panels (and Cheshire is also known to do so), whilst Yorkshire is planning to reinstate its verification panel. Several respondents made the point that a lot of data inherited prior to their taking on the role is riddled with questionable records.

Whilst only one person quoted local knowledge as the single source of verification, several other county recorders made the point that this was an important part of verification. Only two counties reported that there was no system of verification in use.

Do you feel able to handle any increase in submitted records that may result from a national scheme?

Three county recorders failed to answer this question, whilst out of the remaining 39 respondents 35 (90%) answered "yes", 3 (8%) answered "no" and 1 (2%) answered "possibly". Out of those who answered "yes", several made the point that it would depend upon the scale of increase and that above a certain level greater emphasis upon electronic data submission would be needed. Some county recorders felt that a new scheme was unlikely to lead to an increase in records, whilst one recorder stated that financial assistance would be necessary.

What would help you in your role as county recorder?

Out of the 42 respondents 14 (33%) indicated that they did not need any assistance, three (7%) did not answer the question and 25 (60%) said that they would need some support. Twelve of these county recorders wanted assistance with data input, 11 help with handling record verification and five stated that computer training would be useful. Respondents were also given the opportunity to specify any other areas of assistance they might require, these being as follows:

- Grants for IT improvements.
- Financial assistance with time taken to submit data.
- List of critical species by region.

- Encourage recorders to submit data electronically.
- Publicising where to send data.
- Transferring role to someone who lives in the vice county.
- Help with transporting data efficiently.
- Developing software tools to simplify record transfer.
- Development of user-friendly spreadsheets.
- Advice on software.
- MapMate training days.
- More moth recorders.
- Provision of national macro-moth lists i.e. separate lists for England, Scotland and Wales.
- Compatibility between MapMate and Recorder software systems so that data can be exported between the two.
- Training on techniques for genitalic examination.

One county recorder stated that he was not prepared to use computers.

Yearly expenses incurred by county moth recorders

The average total annual expenses for the 21 respondents who gave figures is £65. Many respondents commented that they could not accurately provide figures, whilst one felt that the role of county recorder was a voluntary one and that such expenses are part of the job.

How would you prefer to submit data to a national scheme?

Forty county recorders completed this question, and the following preferences were expressed (Table 6). As some recorders expressed more than one preference the percentages add up to more than 100%.

Table 6. Preferred methods of data submission to the NMRS, based upon combined data from respondents.

Format	No.	Percentage
Website	5	13
MapMate	16	40
Paper	5	13
Database (unspecified)	5	13
Excel	7	18
Value separated text file	2	5
Recorder	1	3
Microsoft Word	1	3
Any means	1	3
Via local records centre	2	5

Data exchange with other organisations

There were 40 responses to this question. The sources in Table 7 were identified as ones to which the county recorder submits data. Many respondents gave several sources so the percentages quoted add up to more than 100%.

Table 7. Sources to which data are supplied, based upon combined data from respondents.

Source	No.	Percentage
Local records centre	26	65
National Scarce Moth Recording Scheme	22	55
Wildlife trust	15	38
Natural history organisation	9	23
Museum	6	15
Countryside Council for Wales (CCW)	1	3
Not decided	1	3
No exchange	1	3

Are you working towards production of a county list?

Three county recorders did not answer this question. Out of the remaining 39 respondents 7 (18%) stated that this had already been done or was done regularly, 6 (15%) stated 'no', 26 stated 'yes' (65%).

Conclusions

Involvement of the county moth recorders will be a key part of a national recording scheme. It is therefore encouraging to see such widespread support for the scheme, with 100% of respondents expressing support. Inevitably concerns were raised about some issues, and these will need to be taken into account in constructing the framework for the NMRS. A frequently expressed concern was that all data should reach the county recorder and that they should play a key part in verification. This is also regarded as an important issue by the organisations involved in trying to construct the NMRS. Ownership, access and commercial use of data were other key areas of concern.

It is inevitable that the resulting publicity, recorder training and promotion of moth recording will result in a further increase in the number of records being submitted, adding to the trend for increasing data reported by 67% of the respondents to the questionnaire. It is therefore essential that the NMRS provides county recorders with the necessary support to help deal with this increase. The questionnaire data also shows that a wide variety of methods of data submission and storage are used at county level, and it cannot be assumed that everyone is willing or able to use computer databases. Of the 20 respondents who provided data about record submission by individual recorders, a combined 67% of records were received in paper format. It is clear that the NMRS central structure will need to be versatile in its ability to handle data supplied in different formats.

The quality of the data contained within the NMRS is going to depend upon maintaining high levels of data accuracy, and the local knowledge and expertise provided by county recorders will be an essential tool in verification. Standards are currently high with 87% of respondents using specimen/photographic methods of confirmation, and the increasing trend for validation panels is reflected in the 18% of respondents with such a system operating in their county. It is interesting to note though that 5% of respondents did not use any form of verification.

It will take time to consider all the issues raised by the consultation and planning project, and to construct a scheme that is achievable, will be acceptable to the majority of the recording community and will reconcile the few seemingly conflicting views. Another big hurdle will be to obtain the necessary substantial funding to get such an ambitious project off the ground. Further updates on progress will be made available in the entomological press and on the website www.mothrecording.org.uk.

With the increasing pressure upon our countryside, evidence of decline in many common moth species (Conrad *et al.* 2004), and the potential for changes in phenology, distribution and abundance as a result of climate change, the need for a national scheme to inform recorders, conservationists, planners and policy makers has never been greater.

Acknowledgements

Many thanks to all those county recorders who responded to the questionnaire or who took the time to make their views about the scheme known to us in other ways. Wider thanks are also due to all those individuals and organisations for their support and input into the consultation and planning phase.

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References

- Conrad, K. F., Woiwod, I. P., Parsons, M., Fox, R. & Warren, M. 2004. Long-term population trends in widespread British moths. *Journal of Insect Conservation* **8**: 119–136.
- Fox, R., Spalding, A., Tunmore, M. & Parsons, M. In press. Planning a new national macro-moth recording scheme. *Journal of the British Entomological and Natural History Society*.
- Goodey, B., Hill, P. & Tunmore, M. 2000. National Moth Night 1999. *Atropos* **9**: 30–32.
- Skinner, B., 1984. *Colour Identification Guide to Moths of the British Isles*. Viking, London.
- Spalding, A. & Tunmore, M. 2004. *Planning phase of a national macro-moth recording scheme*. Unpublished report to Butterfly Conservation. Spalding Associates (Environmental) Ltd., Truro.
- Spalding, A., Tunmore, M., Parsons, M. & Fox, R. 2005. The state of moth recording in Britain: the results of the national macro-moth recording scheme consultation questionnaire. *Atropos* **24**: 9-19.

Appendix 1. County Recorders who responded to the questionnaire

Vice-county	Name of vice-county	Name of respondent
VC1 & VC2	West Cornwall & East Cornwall	R. Howard
VC3 & VC4	South Devon & North Devon	R. F. McCormick
VC5 & VC6	South Somerset & North Somerset	P. Tennant
VC7 & VC8	North Wiltshire & South Wiltshire	J. d'Arcy
VC9	Dorset	P. Davey

VC11 & VC12	South Hampshire & North Hampshire	T. Norriss
VC13 & VC14	West Sussex & East Sussex	C. Pratt
VC15 & VC16	East Kent & West Kent	I. Ferguson
VC17	Surrey	G. Collins
VC18 & VC19	South Essex & North Essex	B. Goodey
VC20 & VC21	Hertfordshire & Middlesex	C. W. Plant
VC23	Oxfordshire	M. Townsend
VC24	Buckinghamshire	M. Albertini
VC25 & VC26	East Suffolk & West Suffolk	T. Prichard
VC30	Bedfordshire	L. Hill
VC31	Huntingdonshire	B. Dickerson
VC32	Northamptonshire	J. Ward
VC33 & VC34	East Gloucestershire & West Gloucestershire	R. Gaunt
VC35	Monmouthshire	M. Anthony
VC38	Warwickshire	D. Brown
VC39	Staffordshire	D. Elmley
VC40	Shropshire	P. Boardman
VC42	Breconshire	N. Lowe
VC44	Carmarthenshire	J. Baker
VC45	Pembrokeshire	R. Elliott
VC46	Cardiganshire	A. Fowles
VC48	Merionethshire	A. Graham
VC49	Caernarvonshire	D. Evans
VC50	Denbighshire	B. Formstone
VC55	Leicestershire (with Rutland)	A. Russell
VC56	Nottinghamshire	S. Wright
VC59 & VC60	South Lancashire & West Lancashire	C.A. Darbyshire
VC61	South-east Yorkshire	} P. Winter
VC62	North-east Yorkshire	
VC63	South-west Yorkshire	
VC64	Mid-west Yorkshire	
VC65	North-west Yorkshire	
VC67 & VC68	South Northumberland & North Northumberland	N. Cook
VC71	Isle of Man	G. Craine
VC86 & VC87	Stirlingshire, West Perthshire	J. Knowler
VC91, VC92	Kincardineshire, South Aberdeenshire	B. Palmer
& VC 93	North Aberdeenshire	& M. Young
VC94	Banffshire	R. Leverton
VC95	Moray	} D. Barbour
VC96 & VC97,	East Inverness-shire & West Inverness-shire	
VC104-106	North Ebudes, West Ross, East Ross	
VC107	East Sutherland,	} D. Williams
VC108	West Sutherland	
VC109	Caithness	
VC111	Orkney Islands	S. Gauld
VC112	Shetland Islands	M. Pennington